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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: **Torabi**  
Application No.: **09/933,582** Examiner: **Alicia Baturay**  
Filed: **August 20, 2001** Docket No.: **LUTZ 2 00405**  
Case Name/No.: **Torabi 6**

For: **VIRTUAL REALITY SYSTEMS AND METHODS**

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PATENT APPLICATION

THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Torabi

Application No.: 09/933,582

Examiner: Alicia Baturay

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For: **VIRTUAL REALITY SYSTEMS AND METHODS**

BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Appeal from Group 2155

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This Appeal Brief is in furtherance to the Notice of Appeal that was mailed to the U.S. Patent and Trademark Office together with a Pre-Appeal Brief Request for Review on June 1, 2007, and received in the Office on June 5, 2007, in regard to the above-referenced patent application.

The fees required under 37 C.F.R. §1.17 and any required petition for extension of time for filing this brief and fees therefor are addressed in the accompanying transmittal of Appeal Brief.

Appellant files this Appeal Brief in connection with the above-identified application wherein claims 1-22 were finally rejected in the Final Office Action that was mailed January 4, 2007.

#### **I. REAL PARTY IN INTEREST**

The real party in interest for this appeal and the present application is Lucent Technologies, Inc. (600 Mountain Avenue, Murray Hill, New Jersey 06974-0636, U.S.A.), by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 012486, Frame 0370.

## **II. RELATED APPEALS AND INTERFERENCES**

Currently, it is believed there are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending Appeal.

**III. STATUS OF CLAIMS**

The status of the claims set forth in the Final Office Action mailed January 4, 2007 was, and is, as follows:

Claims 1-22 are rejected.

The present appeal is directed specifically to claims 1- 22.

#### **IV. STATUS OF AMENDMENTS**

An amendment (Response 4 (After Final)), traversing the rejections of the Office Action that was mailed January 4, 2007, was mailed on April 3, 2007 and received in the Office on April 9, 2007.

An Advisory Action indicating that Response 4 would be entered for purposes of Appeal, but that Response 4 did not place the application in condition for allowance, was mailed by the Office on April 23, 2007.

Accordingly, a Pre-Appeal Brief Request for Review and Notice of Appeal were filed by the Applicant on June 1, 2007.

A Notice of Panel Decision from Pre-Appeal Brief Review indicating that the application remains under appeal and that the Applicant is required to submit an Appeal Brief was mailed by the Office on July 2, 2007.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application is directed toward virtual reality systems and methods wherein virtual reality environment (VRE) user equipment (VUE) includes wireless devices such that one or more **mobile** users at a plurality of locations may simultaneously participate in a virtual reality episode. The virtual reality user equipment (VUE) captures and transmits, among other things, **real world video data**.

In order to support the mobility of users, the systems can include elements (e.g., a VRE episode management entity (104), VRE episode control entities (VECE) (both serving and proxy) and **VRE access systems (VAS)** that maintain information regarding the location of users and/or VRE user equipment (VUE) associated with the user or **subscriber** during a virtual reality episode.

For example, system elements determine and maintain **mobile** communication **links** associated with the users that are updated as the users move from a geographic area served by a first VAS to geographic areas served by other VRE access systems (VAS). The maintenance of these communication links allow a VRE episode participant to travel over a wide geographical area while participating in a virtual reality episode. A VAS provides wireless connectivity for a VUE to the virtual reality system. **Handoff functions** are performed when a user and/or VUE move between systems. Other aspects of the system support security and **subscription** maintenance for the users.

For example, as recited in independent **claim 1**, a virtual reality system comprises at least one virtual reality environment user equipment (VUE) (FIG. 1, FIG. 2; page 6, lines 19-27; page 8, line 26 - page 14, line 20) operative to capture and transmit **real world video** (page 3, line 30 - page 4, line 9; page 8, line 28 - page 9, line 9; page



10, lines 8-16) and audio data and to display received virtual reality data representing an **actual physical environment** (FIG. 1, FIG. 2, 164, 140, 180; page 10, lines 9-16; page 13, lines 18-25; page 13, line 27 - page 14, line 4).

Additionally, independent claim 1 recites that the virtual reality system includes at least one virtual reality environment core system (VCS) (FIG. 1, FIG. 2, 112, 152, 148, 124; page 6, lines 21-25; page 8, line 22 - page 14, line 8; page 15, lines 2-5), wherein: the core system is in communication with **at least two virtual reality environment subscriber databases** (VSD) (FIG. 1, FIG. 2, 130; page 10, line 17 - page 11, line 21; page 12, lines 5-13; page 13, lines 1-3; page 15, lines 9-16), one of which has a relatively local location and at least one of which has a relatively remote location (e.g., page 10, line 17 - page 11, line 21); the virtual reality environment core system being in wireless communication with the at least one VUE, the core system being operative to access **the relatively local VSD to retrieve subscription** information of the at least one VUE if the core system is a respective home core system of the at least one VUE and to access at least one of the at least one **relatively remotely located VSD to retrieve subscription** information of the at least one VUE if the core system is a visited virtual reality core system relative to the at least one VUE (e.g., page 10, line 17 - page 11, line 21). Furthermore, independent **claim 1** recites a virtual reality environment episode management entity (VEME) (FIG. 1, FIG. 2, 136; page 6, lines 21-27; page 12, lines 10-13; page 14, lines 6-29; page 15, lines 9-27) which is in communication with at least one virtual reality core system and is operative to forward the virtual reality data representing the environment to the at least one VUE and **receive the real world video** and audio data **from the at least one VUE**, thereby facilitating a virtual reality episode.

Independent **claim 9** recites a method (FIG. 2) of enabling the real time establishment and conduction of a real time virtual reality episode (VRE), comprising:

receiving a request (page 12, lines 19-29; page 14, line 30 - page 16, line 13) for establishing a virtual reality episode (VRE) from VRE user equipment (VUE);

accessing a relatively **local** virtual reality environment **subscriber database** to retrieve **subscription information** associated with the VUE if an entity receiving the request is a respective home virtual reality core system of the VUE (page 10, line 17 - page 11, line 20);

accessing a **relatively remote** VSD to retrieve respective **subscription information** of the VUE if the entity receiving the request is a visited virtual reality core system (VCS) relative to the VUE (page 10, line 17 - page 11, line 20);

receiving **real time** virtual reality data (page 3, lines 3-8; page 3, lines 16-21; page 5, lines 10-15; page 5, line 25 - page 6, line 2; page 6, lines 3-10; page 6, line 19 - page 7, line 3; page 8, line 22 - page 9, line 13; original claims 9-12 and 16) at a virtual reality environment (VRE) episode management entity (VEME) (FIG. 1, FIG. 2, 136), wherein the virtual reality data is representative of an **actual** physical environment (FIG. 1, FIG. 2, 140, 164, 180);

**determining**, at a VRE episode management entity, **that the virtual reality data is associated with the requested virtual reality episode** (page 5, line 25 - page 6, line 2; page 14, line 21 - page 15, line 18; original claim 9); and

forwarding, **based on the accessed subscription information**, at least a portion of the virtual reality data to the VUE, wherein the VRE user equipment is in wireless communication with the VRE episode management entity (VEME) and wherein the VRE user equipment (VUE) is operative to capture, transmit and display virtual reality data

(page 5, lines 4-9; page 5, line 29 - page 6, line 2; page 6, lines 14-18; page 6, lines 24-27; page 10, lines 12-16; page 13, lines 3-5; page 13, lines 11-14; page 15, line 19 - page 16, line 7; original claims 1, 9, 13, 14 and 16).

Independent **claim 16** recites a virtual reality system (FIG. 1) that enables the real-time conduction of a virtual reality episode, comprising:

at least one virtual reality environment user equipment (VUE) (FIG. 1, FIG. 2, 104) operative to capture and display virtual reality data, associated with at least one user (page 6, lines 19-27; page 8, line 25 - page 16, line 7);

at least one virtual reality environment core system (VCS) (FIG. 1, FIG. 2, 112, 124, 148, 152), wherein the at least one VCS has a pre-existing relationship (page 6, lines 21-27; page 10, line 20 - page 11, line 4; page 12, lines 25-29; original claim 9) with one of the at least one VUE and the at least one user;

a plurality of virtual reality environment access systems (VAS) (FIG. 1, FIG. 2, 108, 168, 184; page 12, line 30 - page 13, line 14; page 5, lines 16-20; page 9, lines 14-29; page 11, lines 5-7; original claim 6), wherein each respective VAS of the plurality provides wireless connectivity for respective ones of the at least one VUE, whereby the respective VAS relays messages between the VUE and the at least one VCS; and wherein responsibility for providing connectivity is handed off from a first respective VCS to a second respective VCS (page 11, lines 10-21) if the respective ones of the at least one VUE move out of a first geographic region served by the first respective VCS and into a second geographic region that is served by the second respective VCS; and

a virtual reality environment episode management entity (VEME) (FIG. 1, FIG. 2, 136), in communication with the at least one user and the at least one VCS (page 6,

lines 24-25), wherein the VEME forwards real time virtual reality data representative of an actual physical environment to the at least one VUE (page 6, lines 24-27) associated with the at least one user through wireless connectivity services of the respective VAS currently serving the at least one VUE of the at least one user based on VUE or user location and/or mobile link information (page 14, lines 6-8; page 6, lines 14-18; page 12, line 30 - page 13, line 1; page 13, line 26 - page 14, line 29) maintained by the VEME.

Independent **claim 17** recites a method (FIG. 2) of participating in a real-time virtual reality episode, comprising;

providing a virtual reality environment user equipment (VUE) (FIG. 1, FIG. 2, 104), wherein the virtual reality user equipment (VUE) captures and displays virtual reality data representing an actual physical environment (e.g., 140, 164, 180) associated with a first user (page 8, line 25 - page 9, line 13; page 10, lines 8-16; page 13, lines 19-25; page 3, lines 3-8; page 3, lines 9-12; page 3, line 30 - page 4, line 9; page 4, lines 14-15; page 5, lines 14-15; page 5, lines 28-29; page 6, lines 6-10; page 6, lines 24-27; page 8, lines 25-28; page 9, lines 3-9);

wirelessly **transmitting the captured virtual reality data** to a first virtual reality environment access systems (VAS) (FIG. 2, 225; Abstract; page 3, lines 12-16; page 3, line 30 - page 4, line 4; page 5, lines 15-20; page 6, line 29 - page 7, line 3; page 9, line 14 - page 10, line 16);

communicating the captured virtual reality data to intervening network elements including a second VAS (FIG. 2, 228, 234, 237, 240, 243, 108; page 10, lines 8-16; page 11, lines 22-13);

accessing a relatively local virtual reality environment **subscriber** database (VSD) **to retrieve subscription information** associated with a second user participating in the virtual reality episode, if an entity in communication with the second user is a home virtual reality core system (H-VCS) of the second user (page 10, line 17 - page 11, line 20);

accessing a relatively remote VSD to retrieve **subscription information** of the second user if the entity in communication with the second user is a visited virtual reality core system (V-VCS) relative to the second user (page 10, line 17 - page 11, line 20); and

wirelessly transmitting the virtual reality data from the second VAS to the second user **as authorized by the subscription information** associated with the second user, wherein the second VAS and the second user are geographically remote from the first user (e.g., FIG. 2, 225, 246; Abstract; page 3, lines 12-16; page 3, lines 19-21; page 3, line 30 - page 4, line 4; page 4, lines 5-7; page 5, lines 15-20; page 6, line 29 - page 7, line 3; page 9, line 14 - page 10, line 16) page 7, lines 1-3; original claim 17).

Independent **claim 20** recites a system (FIG. 1, 100) that is operative to provide virtual reality data services to a subscriber using virtual reality environment user equipment (VUE) (FIG. 1, FIG. 2, 104), the system comprising:

a virtual reality environment episode management entity (VEME) (FIG. 1, FIG. 2, 136) that is operative to manage, coordinate, synchronize and maintain event information and **mobile links** between participants and information sources associated with a virtual reality episode (page 14, lines 6-8);

a virtual reality environment control entity (VECE) (FIG. 1, FIG. 2, 116, 132, 172, 176, 156, 160; page 12, line 5 - page 14, line 20; page 14, line 30 - page 16, line

7) that is operative to control virtual reality episodes associated with the subscriber or the VUE by accessing a local (page 10, line 17 - page 11, line 20) virtual reality environment subscriber database (VSD) (FIG. 1, FIG. 2, 130) if the VECE is a home VECE of the subscriber or VUE, or accessing a remote (page 10, line 17 - page 11, line 20) virtual reality environment subscriber database (VSD), if the VECE is a visited VECE relative to the subscriber or VUE, to determine subscription information (page 10, line 17 - page 11, line 4; page 14, lines 11-13; page 15, lines 9-18) associated with the subscriber and/or the VUE, and providing system access and or services to the VUE and relaying messages between the VUE and the VEME according to the subscriber information and the mobile links, and

a virtual reality environment access system (VAS) (FIG. 1, FIG. 2, 108, 144, 168, 184), wherein the VAS provides wireless connectivity (page 14, lines 6-8; page 6, lines 14-18; page 12, line 30 - page 13, line 1; page 13, line 26 - page 14, line 29) for the VUE if the VUE is located in a respective geographic region served by the VAS, whereby the VAS relays messages between the VUE and the VECE;

wherein responsibility for providing connectivity is handed off (page 11, lines 10-21) from the VECE if the VUE moves out of a first geographic region served by the first VECE.

**Claims 21 and 22** depend from independent **claim 20**.

**Claim 21** recites the system of **claim 20** further comprising:

at least one additional virtual reality environment VECE (FIG. 1, FIG. 2, 116, 132, 172, 176, 156, 160; page 12, line 5 - page 14, line 20; page 14, line 30 - page 16, line 7) that is operative to control virtual reality episodes associated with at least one additional subscriber using at least one additional VUE by accessing a local (page

10, line 17 - page 11, line 20) virtual reality environment **subscriber database** (VSD) (FIG. 1, FIG. 2, 130) if the VECE is a home VECE of the at least one additional subscriber or VUE, and accessing a remote (page 10, line 17 - page 11, line 20) virtual reality environment **subscriber database** (VSD), if the VECE is a visited VECE relative to the at least one additional subscriber or VUE, to determine at least one additional set of **subscription information** (page 10, line 17 - page 11, line 4; page 14, lines 11-13; page 15, lines 9-18) associated with the at least one additional subscriber (e.g., FIG. 2, 225, 246; Abstract; page 3, lines 12-16; page 3, lines 19-21; page 3, line 30 - page 4, line 4; page 4, lines 5-7; page 5, lines 15-20; page 6, line 29 - page 7, line 3; page 9, line 14 - page 10, line 16) page 7, lines 1-3; original claim 17) and/or the at least one additional VUE, and providing system access and/or services to the at least one additional VUE and relaying messages between the at least one additional VUE and the VEME according to the **subscriber information** and the **mobile links**, and

at least one additional virtual reality environment access system (VAS) (FIG. 1, FIG. 2, 108, 144, 168, 184) associated with the at least one additional VECE, wherein each respective additional VAS provides wireless connectivity (page 14, lines 6-8; page 6, lines 14-18; page 12, line 30 - page 13, line 1; page 13, line 26 - page 14, line 29) for at least one of the at least one additional VUE if the at least one additional VUE is located in a respective geographic region served by the respective additional VAS, whereby the respective additional VAS relays messages between the at least one additional VUE and a respective one of the at least one additional VECE; and wherein responsibility for providing connectivity is **handed off** from a first respective additional VAS to a second respective additional VAS if the at least one additional VUE moves

out of a first additional geographic region served by the respective first additional VAS and into a second additional geographic region that is served by a second respective additional VAS (FIG. 1, FIG. 2, 108, 168, 184; page 12, line 30 - page 13, line 14; page 5, lines 16-20; page 9, lines 14-29; page 11, lines 5-7; page 11, lines 12-21; original claim 6)

**Claim 22** recites the system of **claim 21** further comprising:

a virtual reality environment gateway (FIG. 1, FIG. 2, 120) entity that is operative to provide boundary entity services that facilitate a communication of messages between the VECE and the at least one additional VECE, the boundary entity services including at least one of firewall services, hiding underlying network structure, facilitating the flow and routing of virtual reality episode control signals, and converting or translating signals or protocols between elements of the system (e.g., page 11, line 21 - page 12, line 4; page 13, lines 3-5; page 13, line 27 - page 14, line 1; page 15, lines 2-8).

**Claims 2-8** depend from independent **claim 1**. **Claims 2-5** recite features that can be included in the virtual reality environment user equipment (VUE). **Claim 2** recites that the VUE is operative to capture virtual reality data in real time (page 5, lines 10-11). **Claim 3** recites that the VUE is operative to display the virtual reality data in real time (page 5, lines 12-13). **Claim 4** recites at least one additional VUE in hardwire communication with at least one of the at least one VCS (page 4, lines 1-4; page 9, lines 17-19). **Claim 5** recites the virtual reality episode is conducted between a plurality of virtual reality environment user equipment (VUE) (Abstract; page 5, lines 15-16; page 12, lines 14-16; original claim 5).

**Claim 16** recites the virtual reality system of **claim 1**, further comprising:



a virtual reality environment access system (VAS) (FIG. 1, FIG. 2, 108, 144, 168, 184), wherein the virtual reality environment access system facilitates the wireless communication (FIG. 1, FIG. 2, 108, 168, 184; page 12, line 30 - page 13, line 14; page 5, lines 16-20; page 9, lines 14-29; page 11, lines 5-7; original claim 6) of the at least one virtual reality environment user equipment with the at least one virtual reality environment core system (e.g., page 9, line 30 - page 10, line 16).

**Claim 7** recites the virtual reality system of **claim 1**, wherein one of the at least one virtual reality core systems (VCS) (FIG. 1, FIG. 2, 112, 124, 148, 152) comprises a virtual reality entity subscription database (VSD) (FIG. 1, FIG. 2, 130; page 12, lines 5-13).

**Claim 8** recites the virtual reality system of **claim 1**, wherein the virtual reality environment episode management entity (VEME) (e.g., FIG. 1, FIG. 2, 136) is located within one of the at least one virtual reality environment core system (VCS) (FIG. 1, FIG. 2, 124).

**Claims 10-15** depend from independent **claim 9**.

**Claim 10** recites the method of **claim 9**, further comprising capturing and transmitting, in real time, virtual reality data representative of an actual physical environment prior to receiving the real time virtual reality data at a virtual reality environment (VRE) episode management entity (VEME) (e.g., page 8, line 24 - page 16, line 7). **Claim 11** recites the method of **claim 10**, wherein capturing in real time, virtual reality data comprises capturing real time audio associated with the actual physical environment (e.g., page 3, line 30 - page 4, line 9; page 6, lines 6-10; page 9, lines 2-9; page 10, lines 8-16). **Claim 12** recites the method of **claim 10**, wherein capturing in real time virtual reality data comprises capturing in real time virtual reality

data representative of an actual physical environment located geographically distant from the VRE user equipment (VUE).

**Claims 13 and 14** recite the method of **claim 9**, further comprising identifying the VRE user equipment (VUE) as participating in the virtual reality episode prior to forwarding at least a portion of the virtual reality data to the VRE user equipment (VUE) and the method of **claim 9**, further comprising determining the location of the VRE user equipment (VUE) prior to forwarding at least a portion of the virtual reality data to the VRE user equipment (VUE), respectively. **Claim 15** recites the method of **claim 9**, wherein determining the location of the VRE user equipment (VUE) comprises querying a database for the location of the VRE user equipment (VUE) (e.g., page 6, lines 11-18; page 10, line 16 - page 11, line 12; and original claims 13-15).

**Claims 18 and 19** depend from independent **claim 17**.

**Claim 18** recites the method of **claim 17**, further comprising receiving, from the second user, data representing one or more actions performed by the second user (e.g., page 7, lines 4-7; and original claim 18).

**Claim 19** recites the method of **claim 17**, wherein wirelessly transmitting occurs automatically after the VRE user equipment captures the virtual reality data (e.g., page 7, lines 4-7; and original claim 19).

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds of rejection are presented for review:

**Claims 1-22** are rejected as unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,213,498 to Filo, et al. ("Filo") and further in view of U.S. Patent No. 6,711,147 to Barnes, et al. ("Barnes").

## VII. ARGUMENT

**Claims 1-22** were rejected under 35 U.S.C. §103(a) as being unpatentable over Filo and Barnes.

However, Barnes is related to a merged packet service and mobile internet protocol (title) and is unrelated to virtual reality systems and methods.

Filo discusses a military virtual command post. As such, Filo is directed at providing only a limited range of virtual experiences (i.e., simulated military operations) to a limited set of users (e.g., executive level, staff and operations level users). As such, it is respectfully submitted that Filo does not disclose or suggest the methods and systems for providing an unlimited range of virtual reality experiences based on virtual reality data **captured from actual physical environments** to virtual reality environment system users that are mobile and moving over a wide geographic area that are disclosed in the present application and recited in **claims 1-22**.

It is respectfully submitted that Filo does not disclose or suggest that virtual command post participants are mobile. Even if Filo can be construed as suggesting participant mobility, it is respectfully submitted that Filo does not disclose or suggest system elements for supporting such mobility.

It is respectfully submitted that these deficiencies are not remedied by Barnes. Even if Barnes discloses a network, system and method for merging a packet service such as GPRS with a mobile IP, Barnes does not disclose, suggest, or contemplate system elements for providing a **mobile** virtual reality environment experience.

**A. No Motivation for Combining Subject Matter from Filo and Barnes**

Accordingly, it is respectfully submitted that there is no motivation in the art for combining Filo and Barnes other than that which could be gleaned from the present application. Accordingly, the rejection of **claims 1-22** is based on impermissible hindsight reasoning.

**B. The Office has not Met its Burden of Presenting a *Prima Facie* Case of Obviousness**

Further in this regard, it is respectfully submitted that **the Office has not met its burden of presenting a *prima facie* case of obviousness**. The alleged motivation for combining subject matter from Barnes with subject matter from Filo suggested by the Office Action: "To allow a mobile node to seamlessly roam between the networks" is allegedly a feature provided by Barnes on its own (column 12, lines 55-60). Therefore, a desire to achieve this goal does not provide a motivation for combining subject matter from Barnes with subject matter from Filo and the Office has not met its burden. Barnes is unrelated to virtual reality systems. Filo does not disclose or suggest a need to support participant mobility over a wide range of geographical areas. Therefore, it is respectfully submitted there is no motivation in the art for combining Filo and Barnes as suggested by the Office Action.

**C. Filo and Barnes do not Disclose or Suggest All of the Elements of the Claims Arranged as Required by the Claims**

Barnes is unrelated to virtual environment experiences.

Filo contemplates a system for providing a limited, predictable set of experiences. Therefore, it is respectfully submitted, Filo provides pre-programmed environments and does not contemplate or provide methods and systems for capturing, transmitting real world or real time data regarding actual real world environments to be used in providing virtual reality experiences. Not surprisingly, therefore, Filo, even in combination with Barnes, does not disclose or suggest all of the elements recited in **claims 1-22** of the present application, arranged as required by **claims 1-22**.

**1. Filo and Barnes do not Disclose or Suggest Capturing Real World or Real Time Data Regarding an Environment (e.g., Video)**

**Claim 1** recites at least one virtual reality environment user equipment (VUE) that is operative to, among other things, capture and transmit real world video. Further in this regard, **claim 1** also recites a virtual reality environment episode management entity which, among other things, is operative to receive the real world video data from the at least one VUE.

**Claim 9** recites a method of enabling the real time establishment and conduction of a real time virtual reality episode comprising, among other things, receiving real time virtual reality data at a virtual reality environment episode management entity (VEME) wherein the virtual reality data is representative of an actual physical environment.

Independent **claim 16** recites a virtual reality system that enables the real time conduction of a virtual reality episode comprising, among other things, a virtual reality environment episode management entity that forwards real time virtual reality data representative of an actual physical environment.

Independent **claim 17** recites a method of participating in a real time virtual reality episode, comprising, among other things, providing a virtual reality environment user equipment (VUE) wherein the virtual reality user equipment (VUE) **captures and displays virtual reality data representing an actual physical environment**.

It is respectfully submitted that contrary to the assertions of the Office Action, Filo and Barnes do not disclose, suggest, or even contemplate virtual reality user equipment operative **to capture and transmit real world video** or a virtual reality environment episode management entity that is operative to receive **real world video** as recited in **claim 1**. Filo and Barnes do not disclose or suggest receiving **real time** virtual reality data at a virtual reality environment episode management entity, **wherein the virtual reality data is representative of an actual physical environment** as recited in **claim 9**. Filo and Barnes do not disclose or suggest a VEME that forwards **real time virtual reality data representative of an actual physical environment** as recited in **claim 16**. Additionally, it is respectfully submitted that Filo and Barnes do not disclose or suggest providing VUE wherein the VUE captures and displays virtual reality data representing an actual physical environment as recited in **claim 17**.

In support of the contrary assertion with regard to **claim 1**, the Office Action directs the attention of the Applicant to column 7, lines 26-30; column 3, lines 2-37; and column 6, line 63 - column 7, line 2, of Filo.

The cited portion of the first citation to column 7 indicates that an executive user is provided with a radio and modem that is linked to a wearable computer and that is effective to transmit updated changes in voice and position data via the network to personal computers of all other users in attendance. It is respectfully submitted that the

cited portion of column 7 does not disclose or suggest a VUE that is operative to capture and transmit **real world video data**.

The cited portion of column 3 indicates that the computer terminal apparatus for the executive level participant includes: a wearable computer that is preferably worn on the belt of the user, display means for displaying the virtual work environment and for displaying in the virtual work environment, animated characters or avatars representing other immersed users in attendance in the virtual work environment and for displaying functional objects in the virtual working environment. The cited portion also indicates that this equipment includes position tracking means for correlating changes in hand and head movements of the executive level user to the executive level user's assigned avatar in the virtual work environment, audio input/output means for transmitting and receiving voice data to and from the virtual work environment. However, the cited portion of column 3 does not disclose or suggest virtual reality user equipment that is operative to capture and transmit **real world video data**.

The cited portions of columns 6 and 7 indicate that "virtual reality gear provided to the executive level user includes a head mounted display ("HMD") 32 that provides a video stream to the eyes. This video stream provides a three-dimensional image that allows the executive level user to think that he is in the virtual world as it would really exist. Also provided is a boom-mounted microphone 34 for projecting voice data into the virtual environment and headphones 36 for hearing other users talking inside the virtual environment. A head tracker 38 tracks motion of the head as the executive level user 30A looks from side to side and up and down. Visual and audio data transmission to and from the HMD 32, microphone 34 and headphones 36 is carried over cord 40 connected to a wearable personal computer 42." It is respectfully submitted that Filo



does not disclose or suggest that the virtual reality gear provided to the executive level user includes a device for capturing real world video data. It is respectfully submitted that the reference to data from the HMD 32 is clearly a reference to head tracker and microphone data and that the reference to visual data is a reference to data transmitted to the HMD 32.

With regard to **claim 9** and the recitation of receiving real time virtual reality data at a virtual reality environment episode management entity (VEME), wherein the virtual reality data is representative of an actual physical environment, the Office Action relies on Filo, column 3, lines 60-67, and column 2, lines 45-61.

However, the cited portion of column 3 indicates that avatars in the virtual work environment can view the “in progress” work of the staff level user in real time by simply “clicking on” the displayed functional objects (i.e., seated avatar or icon) representing that particular staff level user. This information can be projected on a virtual screen display or video wall for viewing by all the other avatars in the virtual work environment.

The cited portion of column 2 indicates that the virtual reality environment proposed by Filo emulates today’s physical military command post, referred to as a virtual command post (“VCP”). Additionally, the cited portion of column 2 indicates that **the VCP exists as software and data on a network** so that there is **no physical** or logistical demands placed on the commander or staff to transport, erect, and configure tons of equipment.

In this regard, it is respectfully submitted that the virtual reality environment of Filo is entirely virtual. Accordingly, no portion of the system of Filo receives real time virtual reality data wherein the virtual reality data is representative of an actual physical environment. It is respectfully submitted that the reference to emulating today’s

physical military command post is a reference to imitating a typical command post and does not disclose or suggest receiving real time virtual reality data representing an actual physical location or environment.

For at least the foregoing reasons, **claim 9**, as well as **claims 10-15**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

With regard to **claim 16** and the recitation therein that the VEME forwards real time virtual reality data representative of an actual physical environment, the Office Action relies on column 3, lines 6-67, and column 2, lines 45-61, of Filo. However, as indicated above, the cited portion of column 3 discusses avatars and a virtual work environment and does not disclose or suggest a VEME forwarding real time virtual reality data representative of an actual physical environment. Column 2, lines 45-61, indicates that the VCP is a simulation of an “actual command post” (line 55), that the VCP exists as software and data on a network (line 49) and that, therefore, there is no physical or logistical demands placed on the commander or staff to transport, erect and configure tons of equipment. Accordingly, it is respectfully submitted that the cited portions of column 3 and column 2 do not disclose or suggest a VEME that forwards real time virtual reality data representative of an actual physical environment. The cited portion includes the phrase “actual” physical environment only to describe the goal of the simulation. Filo does not disclose or suggest capturing, transmitting or forwarding real time or real world data regarding an actual physical environment.

For at least the foregoing reason, **claim 16** is not anticipated and is not obvious in light of Filo and Barnes.

With regard to **claim 17** and the recitation of a VUE that captures and displays virtual reality data representing an actual physical environment, the Office Action relies

on column 2, lines 45-61. However, column 2, lines 45-61, is silent with regard to capturing virtual reality data representing an actual physical environment. Lines 59-61 mention microphones, body encoders and pointing devices connected to individual personal computers. However, these devices are not described by Filo as being used to capture virtual reality data representing an actual physical environment. Instead, discussion at, for example, column 3, lines 1-23, indicates that audio input/output means are for transmitting and receiving voice data and that position tracking means are for correlating changes in hand and head movements of the executive level user. It is respectfully submitted that disclosure of transmitting voice data of a user or head and hand movements of a user does not disclose or suggest capturing audio or video or other data regarding an environment.

Further in this regard, it is respectfully submitted that Filo provides a completely artificial simulation or emulation of a small set of environments (e.g., military operation environments). Accordingly, Filo does not to disclose or suggest capturing real time or real world data regarding an actual physical environment, and Filo does not disclose or suggest doing so or providing a system components for capturing, handling, forwarding such data.

In stark contrast, the systems and methods of the present application are directed toward virtually transporting mobile users in remote locations to an unlimited set of actual locations. Accordingly, the systems and methods of the present application include elements associated with capturing, processing and forwarding real world or real time virtual reality data regarding actual physical environments (e.g., concert halls where actual concerts are being held and operating theaters where actual medical procedures are being carried out) (e.g., page 10, lines 5-16).

For at least the foregoing reasons, **claim 17**, as well as **claims 18** and **19**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

Additionally, **claim 17** recites a method of participating in a real-time virtual reality episode, comprising, among other things, providing a virtual reality environment user equipment (VUE), wherein the virtual reality user equipment (VUE) **captures** and displays virtual reality data **representing an actual physical environment** associated with a first user. In this regard, arguments similar to the arguments submitted above in support of **claims 1, 9** and **16** are submitted in support of **claim 17**.

Column 2, lines 45-61, of Filo (cited by the Office Action) does not disclose or suggest virtual reality user equipment that **captures** and displays virtual reality data representing an **actual physical environment** associated with a first user. **The virtual command post of Filo exists as software and data on a network.** The indication that the VCP emulates today's physical military command post does not disclose or suggest virtual reality environment user equipment that **captures** and displays virtual reality data representing an **actual** physical **environment**. Instead, it is respectfully submitted that the cited portion indicates that the VCP of Filo imitates a typical command post. Since Filo does not disclose or suggest **capturing** virtual reality data representative of an **actual** physical **environment**, column 6, lines 33-52 (cited by the Office Action), cannot disclose or suggest communicating such captured virtual reality data to intervening network elements including a second VAS, even if a remotely located VCP is considered to be analogous to a remotely located VAS (which is disputed). Column 6, lines 22-27 (cited by the Office Action), indicate that participants are in radio contact **with each other**. However, the cited portion does not disclose or suggest that **captured** data representing an **actual** physical **environment** associated with a first user is

wirelessly transmitted to a first virtual reality environment access system. Column 7, lines 26-30 (cited by the Office Action), indicates that the executive user is further provided with a radio and modem that is linked to a wearable computer and that is effective to transmit updated changes in voice and position data via a network to personal computers of all the other users in attendance in the virtual environment. However, the cited portion of column 11 does not disclose or suggest that information is transmitted to a virtual reality access system. Moreover, the cited portion of column 7 does not disclose or suggest that virtual reality data regarding an actual physical environment is captured or transmitted.

For at least the foregoing additional reasons, **claim 17**, as well as **claims 18** and **19**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

**2. Filo and Barnes do not Disclose or Suggest Local and/or Remote Virtual Reality Environment Subscriber Databases (VSD)**

Independent **claim 1** recites a virtual reality system comprising, among other things, at least one virtual reality environment core system (VCS), wherein: the core system is in communication with at least two virtual reality environment subscriber databases (VSD), one of which has a relatively local location and at least one of which has a relatively remote location; the virtual reality environment core system being in wireless communication with at least one VUE, the core system being operative to access the relatively local VSD to retrieve respective subscription information of the at least one VUE if the core system is a respective home core system of the at least one VUE, and to access at least one of the at least one relatively remotely located VSD to

retrieve respective **subscription information** of the at least one VUE if the core system is a visited virtual reality core system relative to the at least one VUE.

Again, it is respectfully submitted that Filo is directed toward providing a virtual command post experience for a limited set of military personnel. As such, Filo is not concerned with **subscriptions** or **subscription information**. Furthermore, Filo is not concerned with whether or not a virtual reality core system is a home or visited virtual reality core system associated with a VUE. Accordingly, contrary to the assertions of the Office Action, Filo does not disclose or suggest virtual reality environment **subscriber databases**. Moreover, Filo does not disclose or suggest relatively local and/or relatively remote subscriber databases.

Nevertheless, in support of the assertion that Filo does disclose a virtual reality core system in communication with local and remote virtual reality environment subscriber databases, the Office Action directs the attention of the Applicant to column 6, lines 33-52 and 22-27, as well as column 10, lines 35-51. However, column 6, lines 33-52, discusses a virtual command post and its interaction with subordinate virtual command posts. While the cited portion includes the word --local-- and --remote--, it is respectfully submitted that the cited portion of Filo does not disclose or suggest at least one virtual reality core system, wherein the core system is in communication with at least two virtual reality environment **subscriber databases** (VSD), one of which has a relatively local location and at least one of which has a relatively remote location as asserted by the Office Action. It is respectfully submitted that the virtual command posts (reference numerals 10, 24, 26 and 28 (which are depicted as tents in FIG. 1 of Filo)) are not, and do not, in any way disclose or suggest virtual reality environments **subscriber databases** as recited in **claim 1**.

Column 6, lines 22-27, indicates that “each of the VCP participants 12, 14, 16 and 18 are radio linked to one another.” In addition, each VCP participant 12, 14, 16 and 18 is represented by a respective animated character or avatar 12A, 14A, 16A and 18A inside the VCP 10. It is respectfully submitted that the cited portion of Filo does not disclose or suggest a virtual reality core system (VCS) being in wireless communication with at least one VUE as recited in **claim 1**. Accordingly, it is respectfully submitted that the virtual command post 10 of Filo is not fairly construed to be analogous to a virtual reality core system as recited in **claim 1** of the present application. However, even if it were, Filo does not disclose or suggest that the virtual command post is in wireless communication with at least one virtual reality user equipment. The users of the system are in radio communication with one another. Filo does not disclose that users are in wireless communication with a VCS or even with the VCP of Filo.

The cited portion of column 10 indicates that when a user immerses into the VCP environment, there is an initial identification process that takes place. However, the cited portion does not disclose or suggest a virtual reality environment core system being operative to access a relatively local subscriber database to retrieve subscription information of the at least one VUE if the core system is a respective home core system of the at least one VUE and to access at least one of the at least one relatively remotely located virtual reality environment subscriber databases (VSD) to retrieve respective subscription information of the at least one VUE if the core system is a visited virtual reality core system relative to the at least one VUE. The cited portion of column 10 does not disclose or suggest a database of any kind. Moreover, the cited portion of column 10 does not disclose or suggest subscribers or subscriber databases.

Furthermore, the cited portion of column 10 does not disclose or suggest virtual reality environment subscriber databases.

It is respectfully submitted that Barnes does not cure these deficiencies.

Accordingly, for at least the foregoing additional reasons, **claim 1**, as well as **claims 2-8**, which depend therefrom are not anticipated and are not obvious in light of Filo and Barnes.

Further in regard to **claim 1**, the Office Action stipulates that Filo does not disclose differentiating between local and remote subscription information databases and relies on Barnes for this disclosure. However, the cited portion of Barnes, column 12, line 55 - column 13, line 1, does not mention a local or remote subscription information database. Additionally, the cited portion of Barnes does not disclose or suggest a subscription database or even a database of any kind. Moreover, the cited portion of Barnes does not disclose or suggest local and/or remote virtual reality environment subscription databases.

Independent **claim 9** recites a method of enabling the real time establishment and conduction of real time virtual reality episode (VRE) comprising, among other things, accessing relatively local virtual reality environment **subscriber database** (VSD) to retrieve **subscription information** associated with the VUE if an entity receiving the request is a respective home virtual reality core system of the VUE; accessing a relatively remote VSD to retrieve respective **subscription information** of the VUE if the entity receiving the request is a visited virtual reality core system (VCS) relative to the VUE.

In this regard, the Office Action directs the attention of the Applicant to column 10, lines 35-51, of Filo and to column 12, line 55 - column 13, line 1, of Barnes in an



effort to remedy the deficiencies of Filo to which the Office Action stipulates. However, the cited portion of Filo (column 10, lines 35-51) only discuss an initial identification process and does not disclose or suggest that either a local or remote virtual reality environment subscriber database is accessed. While the cited portion indicates that the user is identified by some characteristic unique to the individual and lists devices that may be used to “identified” some unique characteristic of a user, the cited portion does not indicate that a database is accessed or that a local database is accessed if an entity receiving the request is a respective home virtual reality core system of the VUE and that a remote database is accessed if the entity receiving the request is a visited virtual reality core system relative to the VUE. It is respectfully submitted that any reading of Filo as suggesting such an architecture is based on information gleaned only from the present application and accordingly represents impermissible hindsight reasoning. Additionally, the cited portion of Barnes (column 12, line 55 - column 13, line 1) outlines steps involved when a mobile node 12, which has just roamed to the location D from the location F, sends a mobile IP registration request message to a foreign agent. However, it is respectfully submitted that the cited portion is silent with regard to subscriber databases. Furthermore, the cited portion is silent with regard to remote and local subscriber databases. Moreover, the cited portion is silent with regard to local and remote virtual reality environment subscriber databases.

For at least the foregoing reasons, **claim 9**, as well as **claims 10-15**, which depend therefrom, is not anticipated and is not obvious and light of Filo and Barnes.

Independent **claim 17** recites a method of participating in a real time virtual reality episode comprising, among other things, accessing a relatively local virtual reality environment subscriber database (VSD) to retrieve **subscription** information

associated with a second user participating in the virtual reality episode, if an entity in communication with the second user is a home virtual reality core system (H-VCS) of the second user; accessing a relatively remote VSD to retrieve subscription information of the second user if the entity in communication with the second user is a visited virtual reality core system (V-VCS) relative to the second user.

Arguments similar to those submitted in support of **claims 1** and **9** are submitted in support of **claim 17** with regard to the recitations regarding accessing relatively local and accessing relatively remote VSD.

For at least the foregoing reasons, **claim 17**, as well as **claims 18-19**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

Independent **claim 20** recites a system that is operative to provide virtual reality data services to a subscriber using virtual reality environment user equipment (VUE), the system comprising, among other things, a virtual reality environment control entity (VECE) that is operative to control virtual reality episodes associated with the subscriber or the VUE by accessing a local virtual reality environment subscriber database (VSD) if the VECE is a home VECE of the subscriber or VUE, or accessing a remote virtual reality environment subscriber database (VSD), if the VECE is a visited VECE relative to the subscriber or VUE, to determine subscription information associated with the subscriber and/or the VUE, and providing system access and or services to the VUE and relaying messages between the VUE and the VEME according to the subscriber information and the mobile links.

With regard to the recitation related to accessing local and remote VSD, arguments similar to those submitted in support of **claims 1** and **9** are submitted in support of independent **claim 20**.

For at least the foregoing reasons, **claim 20**, as well as **claims 21** and **22**, which depend therefrom, are not anticipated and are not obvious in light of Filo and Barnes.

**3. Filo and Barnes do not Disclose or Suggest a Virtual Reality Environment Core System (VCS) Being in Wireless Communication with the at Least One VUE**

Independent **claim 1** recites a virtual reality system comprising, among other things, at least one virtual reality environment core system (VCS), the virtual reality environment core system being in wireless communication with the at least one VUE.

It is respectfully submitted that Filo and Barnes do not disclose or suggest at least one virtual reality core system in wireless communication with at least one VUE. In support of the contrary assertion, the Office Action directs the attention of the Applicant to column 6, lines 22-27. However, column 6, lines 22-27, indicates that “each of the VCP participants 12, 14, 16 and 18 are radio linked to one another.” In addition, each VCP participant 12, 14, 16 and 18 is represented by a respective animated character or avatar 12A, 14A, 16A and 18A inside the VCP 10. It is respectfully submitted that the subject portion of Filo does not disclose or suggest a virtual reality core system (VCS) being in wireless communication with at least one VUE as recited in **claim 1**. Accordingly, it is respectfully submitted that the virtual command post 10 of Filo is not fairly construed to be analogous to a virtual reality core system as recited in **claim 1** of the present application. However, even if it were, Filo does not disclose or suggest that the virtual command post is in wireless communication with at least one virtual reality user equipment.

For at least the foregoing additional reasons, **claim 1**, as well as **claims 2-8**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

Independent **claim 9** recites a method of enabling the real time establishment and conduction of a real time virtual reality episode (VRE), comprising, among other things, forwarding, based on accessed subscription information, at least a portion of the virtual reality data to the VUE wherein the VRE user equipment is in wireless communication with the VRE episode management entity (VEME).

In this regard, the Office Action directs the attention of the Applicant to column 6, lines 22-27, of Filo. However, as indicated above, the cited portion indicates that each of the VCP participants are radio linked to one another. Column 6, lines 22-27, does not disclose or suggest that a VEME, or even the VCP of Filo, is in wireless communication with the virtual reality episode use equipment.

For at least the foregoing additional reasons, **claim 9**, as well as **claims 10-15**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

Independent **claim 16** recites a virtual reality system that enables the real time conduction of a virtual reality episode, comprising, among other things, a plurality of virtual reality environment access systems (VAS), wherein each respective VAS of the plurality provides wireless connectivity for respective ones of the at least one VUE, whereby the respective VAS relays messages between the VUE and the at least one VCS; and wherein responsibility for providing connectivity is handed off from a first respective VCS to a second respective VCS if the respective ones of the at least one VUE move out of a first geographic region served by the first respective VCS in each with second geographic region that is served by the second respective VCS.

It is respectfully submitted that Filo and Barnes do not disclose or suggest a virtual reality system comprising a plurality of virtual reality environment access systems (VAS), wherein each respective VAS of the plurality provides wireless connectivity for respective ones of the at least one VUE.

In support of the contrary assertion, the Office Action relies on column 6, lines 22-27, of Filo in support of the assertion that Filo discloses a plurality of virtual reality environment access systems (VAS), where each VAS of the plurality provides wireless connectivity for respective ones of the at least one VUE. However, it is unclear which element discussed in the cited portion of Filo the Office Action considers to be analogous to a VAS system. Moreover, it is unclear which elements discussed in the cited portion the Office Action considers to be analogous to a plurality of virtual reality access systems. Since the cited portion only discusses the VCP 10 system element in any detail, the Applicant assumes that the Office Action is drawing an analogy between an individual VAS of the plurality of VAS recited in **claim 16** and the VCP discussed in the cited portion of Filo. However, the cited portion of Filo does not disclose or suggest that the VCP of Filo provides wireless connectivity for a respective ones of the at least one VUE. The cited portion of Filo indicates that each of the participants are radio linked to one another as indicated by lightening bolt 20.

For at least the foregoing reasons, **claim 16** is not anticipated and is not obvious in light of Filo and Barnes.

Independent **claim 17** recites a method of participating in a real time virtual reality episode comprising, among other things, wirelessly transmitting the captured virtual reality data to a first virtual reality environment access system (VAS), communicating the captured virtual reality data to intervening network elements

including a second VAS and wirelessly transmitting the virtual reality data from the second VAS to the second user as authorized by the subscription information associated with the second user, wherein the second VAS and the second user are geographically remote from the first user.

It is respectfully submitted that column 6, lines 22-27, cited by the Office Action indicate that participants are in radio contact with each other. However, the cited portion does not disclose or suggest that captured data is wirelessly transmitted to a first virtual reality environment access system. Additionally, it is respectfully submitted that Filo does not disclose or suggest wirelessly transmitting virtual reality data from a second virtual reality environment access system to a second user as authorized by subscription information associated with the second user.

Column 7, lines 26-30, cited by the Office Action, indicates that the executive user is provided with a radio and a modem and that the modem is linked to a wearable computer and is effective to transmit updated changes in voice and position data via the network to the personal computers of all the other users. However, the cited portion of column 7 does not indicate that the modem communicates to the network wirelessly or via the radio. Furthermore, even if Filo could be interpreted as disclosing or suggesting wireless communication through respective virtual reality environment access systems, Filo (and Barnes) does not disclose or suggest wirelessly transmitting virtual reality data from a second VAS to a second user as authorized by subscription information associated with the second user.

For at least the foregoing additional reasons, **claim 17**, as well as **claims 18** and **19**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

**Claim 20** recites a system that is operative to provide virtual reality data services to a subscriber using virtual reality environment user equipment (VUE), the system comprising, among other things, a virtual reality environment access system (VAS), wherein the VAS provides wireless connectivity for the VUE if the VUE is located in respective geographic region served by the VAS, whereby the VAS relays messages between the VUE and the VECE.

In this regard, arguments similar to those submitted in support of **claims 1, 9, 16** and **17** with regard to wireless connectivity and aspects of virtual reality environment access systems are submitted in support of independent **claim 20**.

For at least the foregoing additional reasons, it is respectfully submitted that **claim 20**, as well as **claims 21** and **22**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

**4. Filo and Barnes do not Disclose or Suggest a Virtual Reality Episode Management Entity, Mobile Link Information and/or Interrelated Network Elements**

In order to support unrestricted types of virtual reality environment episodes experienced by unrestricted sets of users or participants, the present application describes a plurality of interconnected and interoperating network elements. In contrast, Filo does not contemplate supporting unlimited kinds of virtual reality environments provided to unlimited sets of users or participants. Indeed, column 6, lines 33-52, clearly indicate that “the trickle-down model or control hierarchy described” by Filo “whereby a single local VCP controls the flow of processed information to three subordinate VCPs is a typical model of the military. It is understood that this

hierarchical model is capable of variation and adaptation for use in **other structured work environments**, such as, for example, the business office work environment.”

Accordingly, Filo does not disclose or suggest the network elements or the interworking of network elements disclosed in the present application and recited in the various claims. In support of the contrary assertion, the Office Actions cast the VCP of Filo in the roles of each of the VAS, VCS, VSD and VEME recited in the claims of the present application. However, Filo does not disclose or suggest that the VCP of Filo is analogous to each of the system or network elements of the present application. Accordingly, it is respectfully submitted that the VCP of Filo is not fairly construed as each of the VCS, VSD, VAS and VEME recited in the various claims of the present application.

For example, **claim 9** recites a method of enabling the real time establishment and conduction of a real time virtual reality episode comprising, among other things, receiving real time virtual reality data at a virtual reality environment episode management entity (VEME), wherein the virtual reality data is representative of an actual physical environment; determining at a VRE episode management entity that the virtual reality data is associated with the requested virtual reality episode and forwarding, based on the accessed subscription information at least a portion of the virtual reality data to the VUE, wherein the VRE user equipment is in wireless communication with the VRE episode management entity (VEME), and wherein the VRE user equipment (VUE) is operative to capture, transmit and display virtual reality data.

That Filo (and Barnes) does not disclose receiving real time virtual reality data representative of an **actual physical environment**, has been addressed above.



With regard to determining at a VRE episode management entity, that the virtual reality data is associated with the requested virtual reality episode, the Office Action provides no specific citation. Instead, in an apparent acknowledgement that Filo does not disclose or suggest this element, the Office Action combines this element with the forwarding element and directs the attention of the Applicant to column 6, lines 33-52. However, the cited portion of Filo is silent with regard to determining that the virtual reality data is associated with a requested episode.

It is respectfully submitted that this issue highlights a significant difference between the system of Filo and Barnes and the systems disclosed and claimed in the present application. Filo does not disclose or suggest determining that virtual reality data is associated with a requested episode because the architecture of the system of Filo is fundamentally different from the system disclosed in the present application and recited, for example, in claim 9. For instance, the VCPs of Filo are not fairly construed as disclosing or suggesting the VEME recited in **claim 9**. The virtual command posts of Filo are only a simulation of command posts. Where the system elements of the present application are directed at supporting a plurality of different and unrestricted virtual reality environments simultaneously, the virtual command posts of Filo are only associated with a particular virtual command post episode. Therefore, all of the data associated with the VCP of Filo is associated with the VCP episode of that VCP. Therefore, there is no need in the system of Filo for a VCP to **determine if particular virtual reality data is associated with a particular requested virtual reality episode** and Filo (and Barnes) does not disclose or suggest determining, at a VRE episode management entity, that the virtual reality data is associated with the requested virtual reality episode as recited in **claim 9**.

Additionally, column 6, lines 33-52, which is cited by the Office Action in support of the assertion that Filo discloses forwarding, based on accessed subscription information, at least a portion of the virtual reality data to the VUE, does not disclose or suggest subscription information, accessing subscription information, or forwarding at least a portion of virtual reality data to a VUE based on accessed subscription information.

Accordingly, it is respectfully submitted that **claim 9**, as well as **claims 10-15**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

**Claim 16** recites a virtual reality environment episode management entity (VEME), in communication with at least one user and the at least one VCS, wherein the VEME forwards real time virtual reality data representative of an actual physical environment to the at least one VUE associated with the at least one user through wireless connectivity services of the respective VAS currently serving the at least one VUE of the at least one user based on VUE or user location and/or mobile link information maintained by the VEME.

Filo is directed at providing a totally artificial, prepackaged, emulation or simulation of a typical command post and, therefore, does not contemplate capturing and forwarding real time data representative of an actual physical environment as has been addressed above.

Additionally, with regard to user location and/or mobile link information being maintained by a VEME, the Office Action cites column 6, lines 33-52, of Filo. However, it is respectfully submitted that the cited portion of column 6 does not disclose or suggest that a VCP maintains user location and/or mobile link information. Moreover, column 6, lines 33-52, does not disclose or suggest that wireless connectivity services

of a VAS are based on VUE or user location and/or mobile link information maintained by the VCP.

It is respectfully submitted that the participants in the system of Filo are not disclosed as moving from location to location in or out of areas served by respective virtual reality environment access systems (VAS). Even if the discussion of remotely located VCPs found at column 6, lines 33-52, is fairly construed as suggesting a plurality of VAS (which is disputed), the cited portion does not disclose or suggest that the participants physically move between those VCPs or that VCPs provide connectivity services therefor. Therefore, Filo does not disclose or suggest that user location or mobile link information needs to be maintained in the system of Filo.

For at least some or all of the foregoing reasons, discussion of the VCPs of Filo does not disclose or suggest the virtual reality environment episode management entity (VEME) recited in **claim 16**, and **claim 16** is not anticipated and is not obvious in light of Filo and Barnes.

**Claim 20** recites a system that is operative to provide virtual reality data services to a subscriber using virtual reality environment user equipment (VUE), the system comprising, among other things, a virtual reality environment episode management entity (VEME) that is operative to manage, coordinate, synchronize and maintain event information and mobile links between participants and information sources associated with a virtual reality episode.

In this regard, it is noted that the Office Action does not even assert that Filo and/or Barnes disclose or suggest a virtual reality environment episode management entity that is operative to *inter alia*: maintain mobile links between participants and information sources associated with a virtual reality episode as recited in **claim 20**.

For at least the foregoing additional reasons, it is respectfully submitted that the Office has not met its burden of presenting a *prima facie* case of obviousness with regard to **claim 20**.

Additionally, **claim 20** recites a virtual reality environment control entity (VECE) that is operative to, among other things, determine subscription information associated with the subscriber and/or the VUE, and provide system access and/or services to the VUE and relay messages between the VUE and the VEME according to the subscriber information and the mobile links. In this regard, it is noted that the Office Action does assert that Filo discloses relaying messages between the VUE and a VEME according to subscriber information and mobile links. In support of this assertion, the Office Action cites column 6, lines 33-52. However, the cited portion is silent with regard to subscriber information and is silent with regard to mobile links.

For at least the foregoing additional reasons, **claim 20**, as well as **claims 21** and **22**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

**Claim 1** also recites a virtual reality environment episode management entity. As recited in **claim 1**, the VEME is in communication with the at least one virtual reality environment core system and is operative to forward the virtual reality data representing the environment to the at least one VUE and receive real world video and audio from the at least one VUE, thereby facilitating a virtual reality episode. Arguments similar to those submitted above with regard to capturing, receiving and forwarding real world video and audio representing an actual physical environment and with regard to lack of disclosure or suggestion that the VCP of Filo is analogous to a VEME which is in communication with the at least one virtual reality environment core system (also the

VCP as constructed by the Office Action) are submitted in support of **claim 1** with regard to the recitation of a virtual reality environment episode management entity.

For the foregoing additional reasons, **claim 1**, as well as **claims 2-8**, which depend therefrom, is not anticipated and is not obvious in light of Filo and Barnes.

## **5. Dependent Claims**

**Claims 2-8** depend from **claim 1**.

**Claim 2** recites that the VUE is operative to capture the real world video and audio data of **claim 1** in real time. It is respectfully submitted that Filo and Barnes do not disclose or suggest capturing real world video data in real time.

**Claim 3** recites the at least one VUE is operative to display the virtual reality data in real time. It is respectfully submitted that Filo discloses displaying an artificial world. Accordingly, Filo does not disclose or suggest displaying virtual reality data representing an actual physical environment in real time.

**Claim 4** recites at least one additional VUE in hardwired communication with at least one of the at least one VCS. It is respectfully submitted that Filo and Barnes do not disclose or suggest the at least one virtual reality environment core system recited in **claim 1**. Accordingly, Filo and Barnes cannot disclose or suggest at least one additional VUE in hardwired communication with at least one of the at least one VCS.

**Claim 6** recites a virtual reality access system (VAS), wherein the virtual reality environment access system facilitates the wireless communication of the at least one virtual reality environment user equipment with the at least one virtual reality environment core system. It is respectfully submitted that the virtual command post of Filo exists as software and data on a network (column 2, lines 49-50). Accordingly, the

virtual command post is not fairly construed as a virtual reality environment access system, wherein the virtual reality environment access system facilitates wireless communication of at least one virtual reality environment user equipment with at least one virtual reality environment core system.

**Claim 7** recites the system of **claim 1**, wherein one of the at least one virtual reality core systems (VCS) comprises a virtual reality entity subscription database (VSD). In this regard, the Office Action directs the attention of the Applicants to column 10, lines 35-51, of Filo. However, the cited portion discusses an initial identification process and does not disclose or suggest a subscription database, a virtual reality entity subscription database or a virtual reality core system comprising a virtual reality entity subscription database.

For at least the foregoing additional reasons, **claims 2-7** are not anticipated and are not obvious in light of Filo and Barnes.

**Claims 10-15** depend from **claim 9**.

**Claim 10** recites capturing and transmitting, in real time, virtual reality data representative of an actual physical environment prior to receiving the real time virtual reality data at a virtual reality environment (VRE) episode management entity (VEME). That Filo and Barnes do not disclose or suggest capturing and transmitting virtual reality data representative of an actual physical environment, in real time or otherwise, has been addressed several times above.

**Claim 11** recites the method of **claim 10**, wherein capturing in real time, virtual reality data comprises capturing real time audio associated with **the actual physical environment**. Even if Filo discloses capturing audio associated with a user, Filo and Barnes do not disclose or suggest capturing audio associated with an actual

**physical environment**. The environments presented by the system of Filo are based on data stored in a network. Filo is concerned with representing a pre-defined virtual command post. Accordingly, Filo does not contemplate or suggest capturing data, including audio data associated with **an actual physical environment**.

**Claim 12** recites the method of **claim 10**, wherein the actual physical environment is located geographically distant from the VRE user equipment (VUE). Since Filo (and Barnes) does not disclose or suggest capturing real time virtual reality data representative of an actual physical environment, Filo (and Barnes) does not disclose or suggest capturing real time virtual reality data of an actual physical environment located geographically distant from the VUE.

**Claim 13** recites identifying the VRE user equipment (VUE) as participating in the virtual reality episode prior to forwarding at least a portion of the virtual reality data to the VRE user equipment (VUE).

It is respectfully submitted that the VCP of Filo is only associated with one virtual command post episode. Accordingly, there is no need to identify VRE user equipment as participating in a particular episode prior to forwarding at least a portion of the virtual reality data associated with that episode, and Filo and Barnes do not disclose or suggest such an identification. Column 10, lines 35-51, of Filo, cited by the Office Action, is directed toward identifying a user and does not disclose or suggest identifying a VRE user equipment as participating in a particular virtual reality episode prior to forwarding at least a portion of virtual reality data to the VRE user equipment as recited in **claim 13**.

**Claim 14** recites determining the location of the VRE user equipment prior to forwarding at least a portion of the virtual reality data to the VRE user equipment. In

regard to **claim 14**, the Office Action again cites column 10, lines 35- 51. However, the cited portion discusses identification of a user and does not disclose or suggest determining a location of VRE user equipment prior to forwarding at least a portion of the virtual reality data to the VRE user equipment.

**Claim 15** recites determining the location of the VRE user equipment comprises querying a database for the location of the VRE user equipment. In this regard, the Office Action again cites column 10, lines 35-51, of Filo. However, it is respectfully submitted that the cited portion of Filo is silent with regard to databases. The cited portion of **Filo is silent** with regard to querying a database for location information regarding VRE user equipment. The cited portion indicates that once a user is identified, the user is allowed to access files and information for which he is authorized. However, this does not disclose or suggest querying a database to determine a location of VRE user equipment. It is respectfully submitted that the user of Filo is likely to know where the user of Filo is. Accordingly, a user of the system would not have to query a database to determine his or her location.

For at least the foregoing additional reasons, **claims 10-15** are not anticipated and are not obvious in light of Filo and Barnes.

**Claims 21 and 22** depend from **claim 20**.

**Claim 21** recites the system of claim 20 further comprising:

at least one additional virtual reality environment VECE that is operative to control virtual reality episodes associated with at least one additional subscriber using at least one additional VUE by accessing a local virtual reality environment subscriber database (VSD) if the VECE is a home VECE of the at least one additional subscriber or VUE, and accessing a remote virtual reality environment subscriber database



(VSD), if the VECE is a visited VECE relative to the at least one additional subscriber or VUE, to determine at least one additional set of subscription information associated with the at least one additional subscriber and/or the at least one additional VUE, and providing system access and/or services to the at least one additional VUE and relaying messages between the at least one additional VUE and the VEME according to the subscriber information and the mobile links, and at least one additional virtual reality environment access system (VAS) associated with the at least one additional VECE, wherein each respective additional VAS provides wireless connectivity for at least one of the at least one additional VUE if the at least one additional VUE is located in a respective geographic region served by the respective additional VAS, whereby the respective additional VAS relays messages between the at least one additional VUE and a respective one of the at least one additional VECE; and wherein responsibility for providing connectivity is handed off from a first respective additional VAS to a second respective additional VAS if the at least one additional VUE moves out of a first additional geographic region served by the respective first additional VAS and into a second additional geographic region that is served by a second respective additional VAS.

Arguments similar to arguments submitted above are submitted in support of **claim 21**. The Office Action does not identify which elements of Filo the Office considers to be analogous to the VECE, the VSD and the VAS recited in claim 21. The cited portions of column 6 do not disclose or suggest **subscriber databases** or virtual reality environment subscriber databases. The cited portion of column 10, even in combination with Barnes, does not disclose or suggest a home or visited virtual reality environment control entity or a local or remote subscriber database. It is unclear which

portion of column 6, lines 33-52, the Office believes discloses a VECE relaying messages between a VUE and a VEME. Indeed, it is unclear which of the elements of the system of Filo the Office considers to be analogous to a VECE and which element of the system of Filo the Office considers to be analogous to a VEME. Column 6, lines 22-27, indicates that participants are in radio link contact **with each other**. However, the cited portion of column 6 does not disclose or suggest a virtual reality environment access system (VAS) providing wireless connectivity for at least one additional VUE. Indeed, it is unclear which element of the system of Filo the Office believes to be analogous to the virtual reality environment access system recited in claim 21.

For at least the foregoing additional reasons, **claim 21**, as well as **claim 22**, which depends therefrom, is not anticipated and is not obvious in light of Barnes taken alone or in any combination.

**Claim 22** recites a virtual reality environment gateway entity that is operative to provide boundary entity services that facilitate a communication of messages between the VECE and the at least one additional VECE, the boundary entity services including at least one of firewall services, hiding underlying network structure, facilitating the flow and routing of virtual reality episode control signals, and converting or translating signals or protocols between elements of the system. The Office Action appears to stipulate that Filo does not disclose or suggest the subject matter of **claim 22** and relies on Barnes for this disclosure. However, even if Barnes discloses or suggests some form of gateway entity, Barnes does not disclose or suggest a virtual reality environment gateway entity such as that recited in **claim 22**. Barnes is not concerned with virtual reality. The system of Filo is unconcerned with mobility or gateways between different mobile network technologies. Accordingly, there is no motivation to incorporate aspects

of mobile networks from Barnes in the system of Filo other than that which could be gleaned from the present application. Accordingly, **claim 22** is not anticipated and is not obvious in light of Filo and Barnes.

CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that **claims 1-22** are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of **claims 1-22**.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Joseph D. Dreher", written over a horizontal line.

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## **APPENDICES**

### **VIII. CLAIMS APPENDIX**

Claims involved in the Appeal are as follows:

1. (Previously Presented) A virtual reality system, comprising:
  - at least one virtual reality environment user equipment (VUE) operative to capture and transmit real-world video and audio data and to display received virtual reality data representing an actual physical environment;
  - at least one virtual reality environment core system (VCS), wherein: the core system is in communication with at least two virtual reality environment subscriber databases (VSD), one of which has a relatively local location and at least one of which has a relatively remote location; the virtual reality environment core system being in wireless communication with the at least one VUE, the core system being operative to access the relatively local VSD, to retrieve respective subscription information of the at least one VUE if the core system is a respective home core system of the at least one VUE, and to access at least one of the at least one relatively remotely located VSD to retrieve respective subscription information of the at least one VUE if the core system is a visited virtual reality core system relative to the at least one VUE; and
  - a virtual reality environment episode management entity (VEME) which is in communication with the at least one virtual reality environment core system and is operative to forward the virtual reality data representing the environment to the at least one VUE and receive the real-world video and audio data from the at least one VUE , thereby facilitating a virtual reality episode.
2. (Previously Presented) The virtual reality system of claim 1, wherein the at least one virtual reality environment user equipment (VUE) is operative to capture the virtual reality data in real-time.
3. (Previously Presented) The virtual reality system of claim 1, wherein the at least one virtual reality environment user equipment (VUE) is operative to display the virtual reality data in real-time

4. (Previously Presented) The virtual reality system of claim 1 further comprising:

at least one additional VUE in hardwired communication with at least one of the at least one VCS.

5. (Previously Presented) The virtual reality system of claim 1, wherein the virtual reality episode is conducted between a plurality of virtual reality environment user equipment (VUE).

6. (Previously Presented) The virtual reality system of claim 1, further comprising:

a virtual reality environment access system (VAS), wherein the virtual reality environment access system facilitates the wireless communication of the at least one virtual reality environment user equipment with the at least one virtual reality environment core system.

7. (Previously Presented) The virtual reality system of claim 1, wherein one of the at least one virtual reality core systems (VCS) comprises a virtual reality entity subscription database (VSD).

8. (Previously Presented) The virtual reality system of claim 1, wherein the virtual reality environment episode management entity (VEME) is located within one of the at least one virtual reality environment core system (VCS).

9. (Previously Presented) A method of enabling the real-time establishment and conduction of a real-time virtual reality episode (VRE), comprising:

receiving a request for establishing a virtual reality episode (VRE) from VRE user equipment (VUE);

accessing a relatively local virtual reality environment subscriber database (VSD) to retrieve subscription information associated with the VUE if an entity receiving the request is a respective home virtual reality core system of the VUE ;

accessing a relatively remote VSD to retrieve respective subscription information of the VUE if the entity receiving the request is a visited virtual reality core system (VCS) relative to the VUE;

receiving real time virtual reality data at a virtual reality environment (VRE) episode management entity (VEME), wherein the virtual reality data is representative of an actual physical environment;

determining, at a VRE episode management entity, that the virtual reality data is associated with the requested virtual reality episode; and

forwarding, based on the accessed subscription information, at least a portion of the virtual reality data to the VUE, wherein the VRE user equipment is in wireless communication with the VRE episode management entity (VEME), and wherein the VRE user equipment (VUE) is operative to capture, transmit and display virtual reality data.

10. (Previously Presented) The method of claim 9, further comprising capturing and transmitting, in real time, virtual reality data representative of an actual physical environment prior to receiving the real time virtual reality data at a virtual reality environment (VRE) episode management entity (VEME).

11. (Previously Presented) The method of claim 10, wherein capturing in real time, virtual reality data comprises capturing real time audio associated with the actual physical environment.

12. (Previously Presented) The method of claim 10, wherein capturing in real time virtual reality data comprises capturing in real time virtual reality data representative of an actual physical environment located geographically distant from the VRE user equipment (VUE).

13. (Previously Presented) The method of claim 9, further comprising identifying the VRE user equipment (VUE) as participating in the virtual reality episode prior to forwarding at least a portion of the virtual reality data to the VRE user equipment (VUE).

14. (Previously Presented) The method of claim 9, further comprising determining the location of the VRE user equipment (VUE) prior to forwarding at least a portion of the virtual reality data to the VRE user equipment (VUE).

15. (Previously Presented) The method of claim 9, wherein determining the location of the VRE user equipment (VUE) comprises querying a database for the location of the VRE user equipment (VUE).

16. (Previously Presented) A virtual reality system that enables the real-time conduction of a virtual reality episode, comprising:

- at least one virtual reality environment user equipment (VUE) operative to capture and display virtual reality data, associated with at least one user;

- at least one virtual reality environment core system (VCS), wherein the at least one VCS has a pre-existing relationship with one of the at least one VUE and the at least one user;

- a plurality of virtual reality environment access systems (VAS), wherein each respective VAS of the plurality provides wireless connectivity for respective ones of the at least one VUE, whereby the respective VAS relays messages between the VUE and the at least one VCS; and wherein responsibility for providing connectivity is handed off from a first respective VCS to a second respective VCS if the respective ones of the at least one VUE move out of a first geographic region served by the first respective VCS and into a second geographic region that is served by the second respective VCS; and

- a virtual reality environment episode management entity (VEME), in communication with the at least one user and the at least one VCS, wherein the VEME forwards real time virtual reality data representative of an actual physical environment

to the at least one VUE associated with the at least one user through wireless connectivity services of the respective VAS currently serving the at least one VUE of the at least one user based on VUE or user location and/or mobile link information maintained by the VEME.

17. (Previously Presented) A method of participating in a real-time virtual reality episode, comprising;

providing a virtual reality environment user equipment (VUE), wherein the virtual reality user equipment (VUE) captures and displays virtual reality data representing an actual physical environment associated with a first user;

wirelessly transmitting the captured virtual reality data to a first virtual reality environment access systems (VAS)

communicating the captured virtual reality data to intervening network elements including a second VAS

accessing a relatively local virtual reality environment subscriber database (VSD) to retrieve subscription information associated with a second user participating in the virtual reality episode, if an entity in communication with the second user is a home virtual reality core system (H-VCS) of the second user;

accessing a relatively remote VSD to retrieve subscription information of the second user if the entity in communication with the second user is a visited virtual reality core system (V-VCS) relative to the second user; and

wirelessly transmitting the virtual reality data from the second VAS to the second user as authorized by the subscription information associated with the second user, wherein the second VAS and the second user are geographically remote from the first user.

18. (Original) The method of claim 17, further comprising receiving, from the second user, data representing one or more actions performed by the second user.



19. (Previously Presented) The method of claim 17, wherein wirelessly transmitting occurs automatically after the VRE user equipment captures the virtual reality data.

20. (Previously Presented) A system that is operative to provide virtual reality data services to a subscriber using virtual reality environment user equipment (VUE), the system comprising:

a virtual reality environment episode management entity (VEME) that is operative to manage, coordinate, synchronize and maintain event information and mobile links between participants and information sources associated with a virtual reality episode;

a virtual reality environment control entity (VECE) that is operative to control virtual reality episodes associated with the subscriber or the VUE by accessing a local virtual reality environment subscriber database (VSD) if the VECE is a home VECE of the subscriber or VUE, or accessing a remote virtual reality environment subscriber database (VSD), if the VECE is a visited VECE relative to the subscriber or VUE, to determine subscription information associated with the subscriber and/or the VUE, and providing system access and or services to the VUE and relaying messages between the VUE and the VEME according to the subscriber information and the mobile links, and

a virtual reality environment access system (VAS), wherein the VAS provides wireless connectivity for the VUE if the VUE is located in a respective geographic region served by the VAS, whereby the VAS relays messages between the VUE and the VECE;

wherein responsibility for providing connectivity is handed off from the VECE if the VUE moves out of a first geographic region served by the first VECE.

21. (Previously Presented) The system of claim 20 further comprising:

at least one additional virtual reality environment VECE that is operative to control virtual reality episodes associated with at least one additional subscriber using at least one additional VUE by accessing a local virtual reality environment subscriber

database (VSD) if the VECE is a home VECE of the at least one additional subscriber or VUE, and accessing a remote virtual reality environment subscriber database (VSD), if the VECE is a visited VECE relative to the at least one additional subscriber or VUE, to determine at least one additional set of subscription information associated with the at least one additional subscriber and/or the at least one additional VUE, and providing system access and/or services to the at least one additional VUE and relaying messages between the at least one additional VUE and the VEME according to the subscriber information and the mobile links, and

at least one additional virtual reality environment access system (VAS) associated with the at least one additional VECE, wherein each respective additional VAS provides wireless connectivity for at least one of the at least one additional VUE if the at least one additional VUE is located in a respective geographic region served by the respective additional VAS, whereby the respective additional VAS relays messages between the at least one additional VUE and a respective one of the at least one additional VECE; and wherein responsibility for providing connectivity is handed off from a first respective additional VAS to a second respective additional VAS if the at least one additional VUE moves out of a first additional geographic region served by the respective first additional VAS and into a second additional geographic region that is served by a second respective additional VAS.

22. (Previously Presented) The system of claim 21 further comprising:

a virtual reality environment gateway entity that is operative to provide boundary entity services that facilitate a communication of messages between the VECE and the at least one additional VECE, the boundary entity services including at least one of firewall services, hiding underlying network structure, facilitating the flow and routing of virtual reality episode control signals, and converting or translating signals or protocols between elements of the system.

**IX. EVIDENCE APPENDIX**

NONE

**X. RELATED PROCEEDINGS APPENDIX**

NONE